Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

JANUARY
1937

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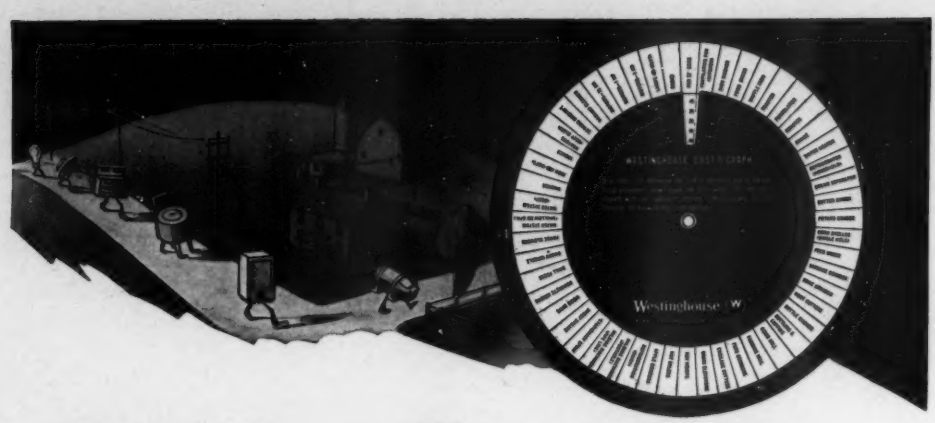
(See inside back cover for details)



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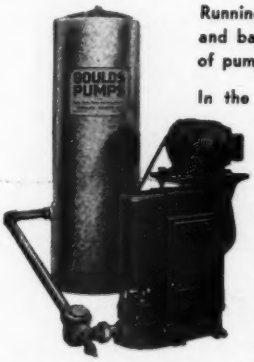

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January, 1937

Electricity on the Farm

Vol. 10, No. 1

EDITORIAL

OUTDOING MOTHER NATURE

The poultry business is one in which electrical applications accomplish in a conspicuous manner results far better than Mother Nature herself has been able to produce. Whether we start with the egg or the hen (not knowing which came first) we find today electricity taking a very important part.

Electric incubating betters the record of the hen in hatch. Electric brooding produces sturdier poultry than can Mother Nature's way, the hen. And less chicks are lost in the process.

Automatic temperature control makes it possible to maintain between very narrow limits a highly uniform temperature within the brooder and to even give an alarm in the event that there is interruption in the current used for heating.

Experience during the past few years shows that these modern brooders are effective in raising chicks even in zero temperatures if strict precautions are employed.

Best of all, far less attention is required where electric brooders are in use than where the old fashion method of having hen mother the chicks is followed.

To make the work even easier, electric heating of water is now being adopted quite commonly with the result that chicks are never deprived of a supply of water at the proper temperature.

The judicious use of light enables the chicks to secure food when they want it and also enables them to find their way back under the hover after feeding.

Because the brooders are built in various sizes, there is hardly a flock too small to utilize one of these modern aids in poultry raising.

No wonder that modern poultry farms are rapidly adopting electric equipment. For it is mighty hard for a non-electrical farm to compete against the electrified one today.

FRED SHEPPERD.

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RUNNING WATER

Even the youngsters appreciate the reliable MYERS

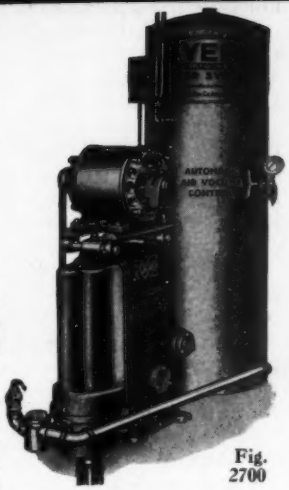

Fig. 2700

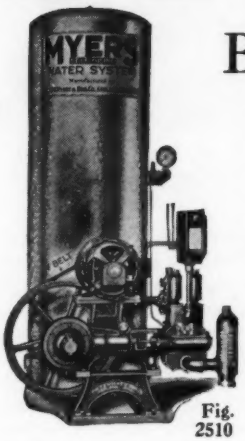

Fig. 2510

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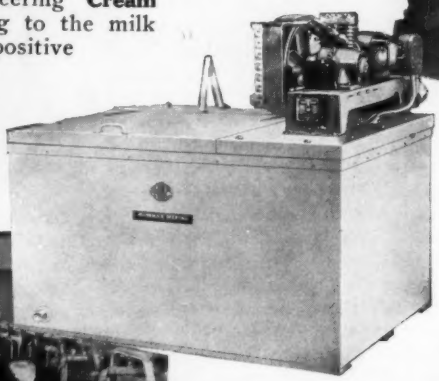

Above: The McCormick-Deering Milk Cooler, 6-can size, electric drive. Combination boxes with wet and dry compartments available.

At Left: The McCormick-Deering Milker is an investment that pays for itself by raising the grade of the milk, and saving as much as 50 per cent in time and labor.

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Useful still but supplemented by a motor for emergency use when the wind doesn't blow.

WHEN THE WIND DIES DOWN—

By BEN MAXWELL

WINDMILLS in Western Oregon are rapidly passing from view.

"They are being replaced," says Warren F. Pohle, a leading implement dealer of the Willamette Valley, "by the more convenient electric pumping outfits, which usually cost less than a windmill in the first place and very little more to run."

"For years we've been selling shallow well electric pumps for $75 and up. The deep well outfits, all set up and ready to go usually don't cost more than $200.

"But comparative costs aren't the whole story. Storage tanks used with windmills used to give the farmers and us a lot of trouble. We had to fix leaky, open tanks way up in the air on jittery wooden towers. That was discouraging to us and usually expensive for the farmer. Then there were a lot of people who didn't like to climb up the towers and grease the bearings. Anyway, they weren't cared for properly and wore out a lot sooner than people thought they should.

"People in this locality just quit using windmills, when high-line service became available, because the electric outfits were cheaper to buy, less trouble and expense to keep going, and a whole lot more convenient."

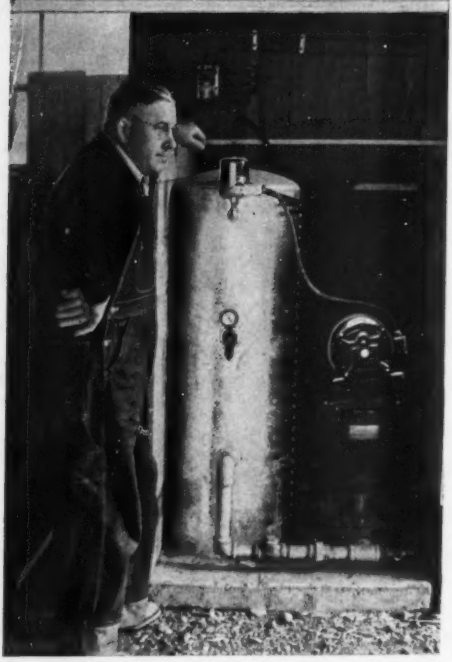
Mr. Pohle has records showing the sale of more than 900 electric pumping outfits in the past 15 years. From many of these outfits sold years ago there has never been a call for service. Here's the way Mr. Pohle puts it.

"With 900 electric outfits sold, suppose each pump required one service call a year. That would be 900 calls a year or about 3 calls every working day, wouldn't it? As a matter of fact, we have less than one service call a week for all the pumping outfits sold and installed during the past 15 years."

Electric Pump Solves Cold Weather Problem

A. E. Bouffleur lives in the Eola hills. He used to have a windmill (a good one, too, on a substantial, lofty tower) but has taken the old wheel down.

"There was always enough wind and the tank was usually full of water," Al will readily admit. "But it gets cold up here in the winter and the intake pipe used to freeze unless we spent a lot of time wrapping it. As the farm developed and expanded we had less and less time to do those tedious, extra jobs. Besides, even in a fifty foot tower, the tank didn't give us enough pressure



Upper: Out of commission because an electric pump gives more pressure and doesn't freeze.

Lower: "It's the most convenient thing on the farm," says W. M. Bishop, an engineer who knows water systems.

for the satisfactory use of large, efficient sprinklers. You get less than 20 pounds pressure from a fifty foot tank when you figure the friction in the pipe.

"About seven years ago we put in an electric pressure system on the ground floor of the old windmill tower. See, we've got a 100 gallon pressure tank and a ½ h.p. motor to run the deep well pump. The pressure goes up to 45 pounds and the water is always cool and fresh. What's more important, the electric system doesn't freeze up, and that was the big trouble with the overhead tank."

A few miles northeast of Salem, Mrs. Ruby Woodward, too, abandoned her windmill when she installed an electric pump.

"You see, I'm a widow. There are some things around the farm," Mrs. Woodward explains, "that a woman can't very well do. Oiling the windmill is one of them. Of course, I have hired help; but they don't seem to be able to climb much better than I. When I did send them up the narrow ladder on the steel tower, the grease job wasn't done thoroughly. Well, the machinery wore out and we finally took the wheel down and installed an electric motor and a pump jack. We still use the tank in the tower for water storage. but the tank doesn't require any attention and the motor and jack hardly more. We're getting along pretty well with our water problem now."

But the Wind Didn't Blow

For Mrs. Lulu Copeland, who lives in a suburban home and supplies water to an adjacent house, the question of an adequate water supply became acute during the unusual autumn calm of 1936. The well was full but the wind didnt' blow.

"Naturally we couldn't put up with that," Mrs. Copeland relates emphatically. "We tried pumping by hand for a while, but that soon got tiresome. There was only one thing to do—get an electric pump that would make us independent of unusual weather. We bought a pump jack and a small motor and now we have all the water two families need to use."

W. M. Bishop, engineer and horticulturist, has had experience with all kinds of water systems. For his farm and household use Mr. Bishop has the latest type of electric water system.

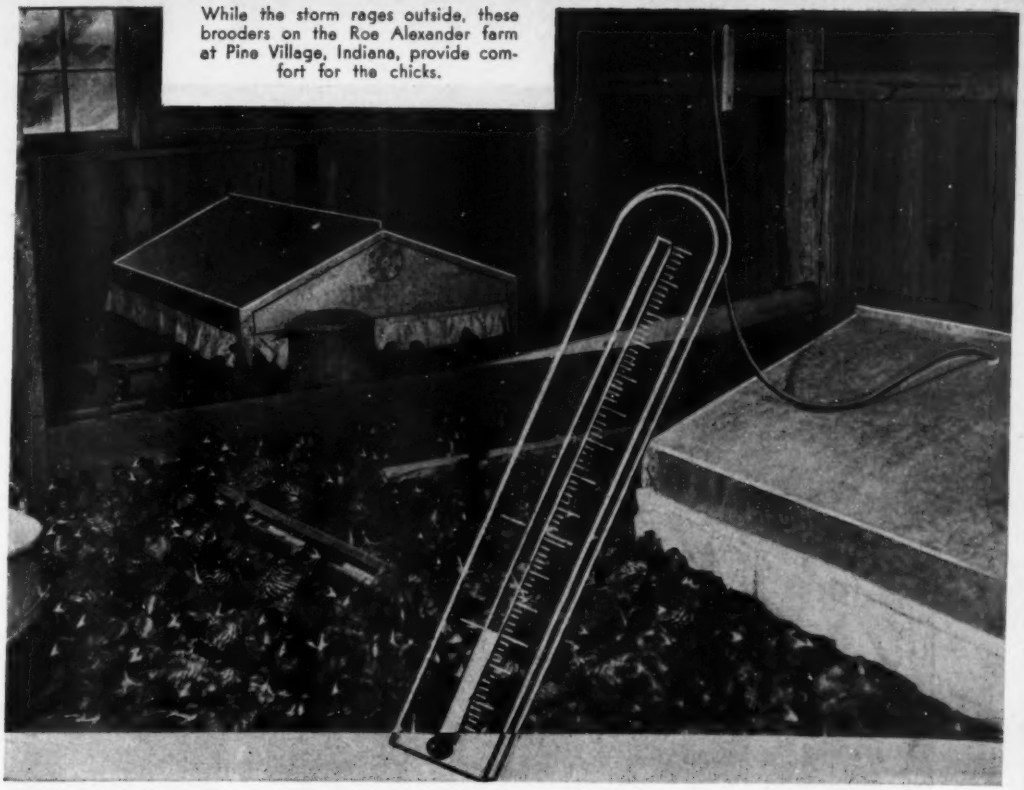
"It's the greatest convenience on the place," says he. "My wife might claim that honor for her electric range, but she has never had to pump water by hand in a burning sun when the wind died down and the windmill failed to run."

Mr. Bishop's pumping system is automatic and provides water for his barn, a large chicken house. his seven room dwelling and plenty for watering the spacious lawn. During the winter months about 300 gallons a day are required, but in the summer, when everything is dry and dusty and needs water most, some 2000 gallons daily are needed.

"That's a lot of water and it probably costs a plenty to pump it?", was the comment offered in the form of a question that needed an answer.

Mr. Bishop tried to look serious but it was difficult.

"When we're real thrifty in the use of water the electric bill for operating the pump is very close to 38 cents a month. When we're extravagant and keep everything soaked up during the summer then the electric bill for the pump is pretty nearly 60 cents a month."



While the storm rages outside, these brooders on the Roe Alexander farm at Pine Village, Indiana, provide comfort for the chicks.

CHICKS CAN BE BROODED in ZERO WEATHER

By EARL DAY

UP in New Hampshire they have some mighty cold winter days. Zero weather is common. And yet brooder losses with early chicks are remarkably low where electric brooding is employed.

Not only has the University of New Hampshire successfully brooded chicks in the coldest of weather locally—but farmers on the hi-lines of the New England Power Association companies have raised chickens for five or six years in unheated houses with the temperatures going down to 20 degrees below zero, and have done this successfully.

Of course, the poultryman must know how to operate his brooders and to take precautions which are essential during severe weather.

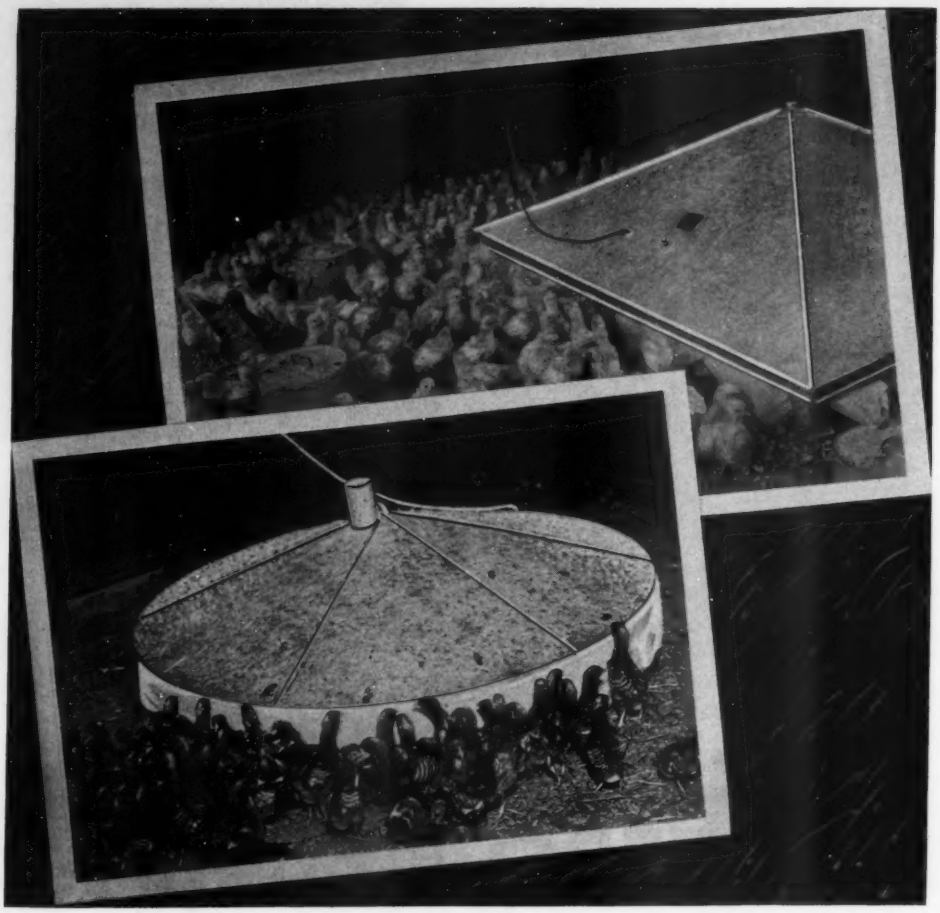
In a recent bulletin on Electric Brooding, Mr. F. L. Rimbach, Rural Service Specialist of the Association, has summed up in a concise and easily understandable way the essentials in cold weather brooding of chicks:

"Practically all poultrymen new to electric brooding are afraid to use them in zero weather," says Mr. Rimbach. "With proper procedure and common sense any poultryman can brood chickens even when the room temperature may be zero or below just so long as proper heat is maintained at the hover. The first three days, paper should be placed over the litter. The chickens should be watched frequently for the first week to see that they are comfortable and do not get out and huddle outside of the brooder. If they huddle under the brooder, which can be easily ascertained, it means the heat is not high enough under the brooder. The ventilator should also be opened. If there should be a stoppage of electric current, blankets can be placed over the hover and no loss of chicks should be suffered for the brooder can go five or six hours without any trouble whatever."

He offers the following rules for successful brooding of chicks:

"1. Before putting chicks under a brooder it should be run for 24 hours in order that the thermostat may be properly adjusted.

"2. There should be proper insulation under the



Upper: The electric brooder is the modern electric mother for the poultry flock. Its operating cost is moderate and a larger flock can be handled in less space.

Lower: If a thorough operating knowledge of the particular type of brooder employed is acquired, mortality of chicks during the brooding period can be considerably reduced by the use of electric brooders.

brooder, such as a platform.

"3. For the first three days small pint jars with water should be placed under the brooder as well as small feeders in order that weak chicks will eat under the brooder in cold weather.

"4. The temperature within the brooder should be not less than 100° for the first 10 days. After that it should be lowered about 5° a week.

"5. A fence should be made in circular form and placed around the brooder a foot away from it for the first week to keep the chicks close by the brooder.

"6. The pilot light should also be kept on under the brooder.

"7. Water troughs can be purchased with float valves. Water warmers can be placed in these which will keep the water from freezing."

Poultrymen of the Pacific Northwest were among the first to employ modern methods in the raising of chickens. It is therefore interesting to have suggestions from one who has been particularly successful in his line, Mr. W. K. Whitaker, Wayside Farm, near Kent, Washington. He says:

"The first step in preparation for brooding is to thoroughly clean and spray the brooder house.

After this is done, see that the brooder house is well aired and dried before the chicks arrive.

"Supplementary heat is not necessary in the brooder room when using a brooder which supplies plenty of heat under the hover, but the brooder room should be free of drafts.

"While a temperature in the brooding room as low as 40° is not a cause for worry, a brooder room temperature above 70° should be corrected immediately.

"To beginners let me say, it is not only expensive but foolish to learn how to operate a brooder while the chicks are under it. It will be far less expensive to gain this experience before the chicks are hatched.

"Allow at least a half of one square foot of room space for each chick. Even more is better. We should provide a room at least 12 x 16 for 350 chicks. A room 20 x 20 should be provided for not more than 750 chicks. More room must be allotted as the chicks grow.

"To do a good job of brooding, I would recommend chicks in lots of 350 to the brooder. Let the man who is working for mass production and volume do his brooding in 1,000-chick lots. Regardless of the number of chicks, however, the floor under the hover should be kept dry. Most harmful bacteria develop best in moisture, while dry heat holds many of them dormant. This is one of the very important features of successful brooding and development of healthy chicks.

"Plenty of heated air should be directed on the floor under the hover. This air should move rapidly over the floor area. The wet litter problem under the hover is being solved by directing warmed currents of air into the hover from the top and out under the brooder curtains, rather than the old method of having cold air come in under the brooder curtains and go out through the top. Obviously the control of air movement by a fan is one solution, but the fan will not turn the trick unless you move enough air at a high enough temperature, and at the same time avoid crowding.

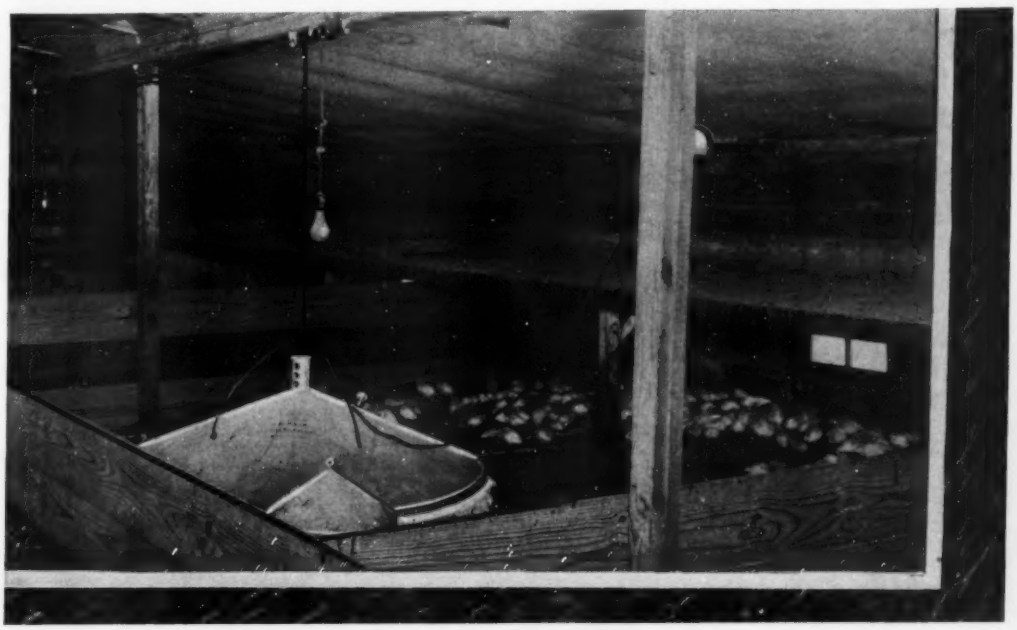
"Without a fan you can have dryness with small lots of chicks up to 250 or 300 with a hover of ample size, and with a suitable heat deflector in the top of the hover to direct the heat rays upon the place where the chicks sleep."

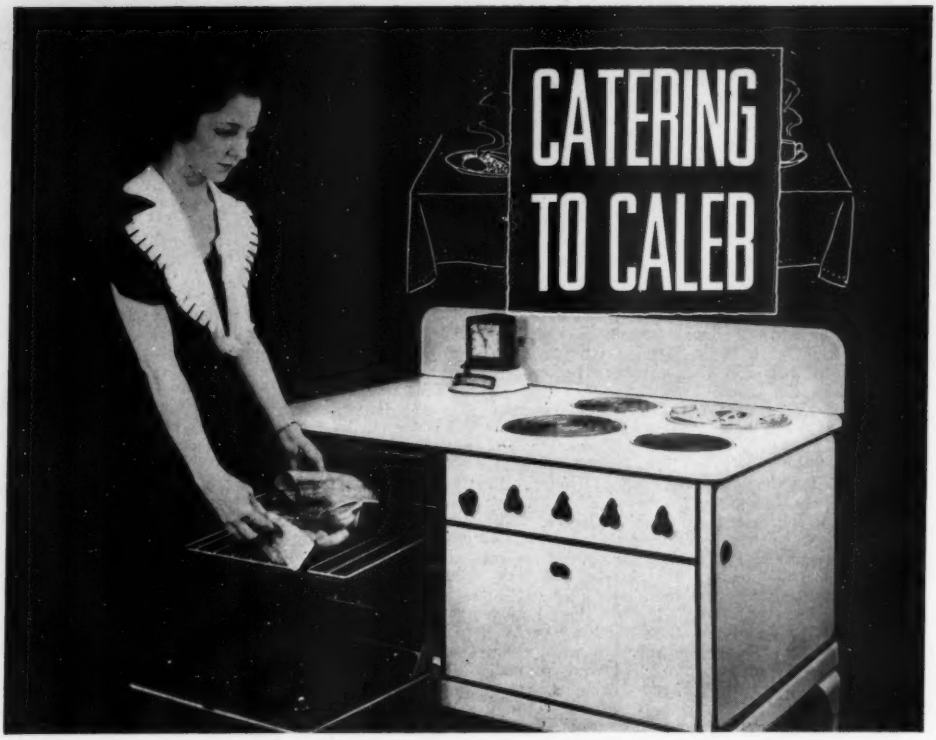
Mr. Whitaker comments that the temperature under the hover should be 95° to 100° for the first three days, dropped to 90° by the end of the first week, and then dropped 5° a week until 70° has been reached, when the chicks will probably be sleeping without brooder heat. This program follows quite closely New Hampshire practices as described previously.

The curtains must not be too close to the floor nor the litter pushed up against the curtains. If they are, they will not only cause wet litter and foul air, but possibly smother the chicks. The chicks themselves, sleeping in a circle at the edge of the hover, may prevent free passage of air. As the chicks grow, the curtains must be raised gradually, or the brooder raised by block under the brooder legs.

"If attraction lights are used under the hover," Mr. Whitaker says, "do not use a bright light except for the first 24 hours. After this time, change the attraction light under the hover to a 10-watt green or blue light. This will give light enough to attract the chicks back to the warm hover if they wander away in the night, and yet it is not too much light to prevent their resting."

Six years of service is ample evidence that the poultryman using the brooder shown below has found that electric brooding pays.





By VERA B. MEACHAM

IT was really Sara Elizabeth who decided that her Grandmother Roland should have an electric range for a golden wedding present. She had been coaxing her father into it for some time.

"But mother is seventy-one," he protested.

"As though that mattered," sputtered Sara Elizabeth.

"I don't know whether she'd ever get the hang of it and like it."

"Grandmother Roland is the best cook in this whole county. You just let her get her hands on an electric range. She'll like it all right. Besides, think how much safer it will be than that old wood stove with its chimney fires every winter."

That was an unanswerable argument. The very next day, the range was ordered.

"Pretty how to do! An electric range for a wedding present," grumbled Grandpa Roland, when they told him about it. "A body'd think I didn't have no part in this golden wedding. What's a man of my age want with a new cook stove?"

"Your age nothing!" retorted his wife. "I guess you'll be glad enough to eat the meals it cooks."

"Now Dad, this stove's going to do a lot for you," protested his son. "You won't have to split kindling for it, nor saw up stove lengths to keep it going. You won't have to carry in wood any more, nor get up early on cold winter mornings to build a fire in it so Mother can get breakfast. It will let you get your cooking fire just as you've been getting your lights from the line that goes by the house."

"Of course, Grandpa," broke in Sara. "We're giving it to you because we know there isn't any easier way for you to get up your winter's fuel for the cook stove than to wire it in, and there isn't any easier way for Grandma to tend fires than by turning a switch."

That first fall, the wedding anniversary came early in November—Grandmother Roland spent lots of time learning to change her ways to take advantage of the convenience and accuracy of this new fuel.

"Took me quite a spell to get over testing that oven with the back of my hand," she told me one day," but at that I wasn't a patch on Caleb's sister. She's run brooder stoves with thermostats on them half her life, seems like, but a thermostat on an oven was just too much for her.

"She came over for Thanksgiving. That was the year she was laid up with a sprained ankle so's she couldn't get around none. That was hard on her, too. She bein' always a managing sort and wantin' a hand in everything that's goin' on."

Grandmother Roland's fine brown eyes had a merry twinkle as she settled back in her com-

fortable rocker and picked up a pile of scarlet wool that looked as though it were on the way to becoming a sweater.

"We were having a little young roast pig for dinner, and I got it in the oven fairly early to let it cook slow. 'Twant long before the good brown smell of crackling pork began drifting in from the kitchen. Sue Ellen began sniffin' it.

"'Jane,' she sez, after a bit. 'Ain't you ever goin' to look to that pig? Maybe the fire's too hot and it's burnin'.

"That worried me some and I peeked in. The roast looked as though it was getting along as well as could be, so I just sez, 'This pig's all right, Sue Ellen.'

"After that she was quiet for a spell, polishing the apples I'd brung her. Then she got to fidgetting again and finally spoke up, real sharp.

"'Are you aimn' to spoil the whole dinner, Jane? What do you know about that stove, cookin' on it three-four days? I can't see a mite of fire anywheres. Nor I can't hear none, either. That oven could get stone cold for all you're watching it.'

"So I went and looked again—and lots more times, for she had me worrying too, thinking about that pig in a strange oven. But each time I looked, the oven was just the same, and each time the pig seemed to be getting browner and browner just as he should, so I just sez, 'It looks just the same, Sue Ellen. I guess it's all right.'

"And it was, too, though I don't know to this day how it could've been with me opening the oven every few minutes to look in. Sara called us old fussbudgets. I spose we were, but, after all, we'd both been watching fires for more'n fifty years and it didn't look right to trust everything to a little black knob on the front of the stove. But I'm getting used to it now. I've *proved* that I can twist that knob around to any number on the dial and then turn the switch, and I'll get a hot oven, a slow oven, or any heat I want and set that thermostat for. I get it, and it'll stay that way, too."

The right temperature has always had an important part in good baking. I suppose that is why women who were shrewd judges of a fire were called lucky with their cakes and said to have a way with meats.

For years the cooking experts who experiment with food have been hammering away at the idea that good cooking is not a matter of luck. Good materials, accurate measurements, they say, the right time and the right temperature will always bring good results.

As Mrs. Roland found to her great comfort and satisfaction, when you cook with electricity, you can always get the right temperature, just by turning the knob to the right number on the dial.

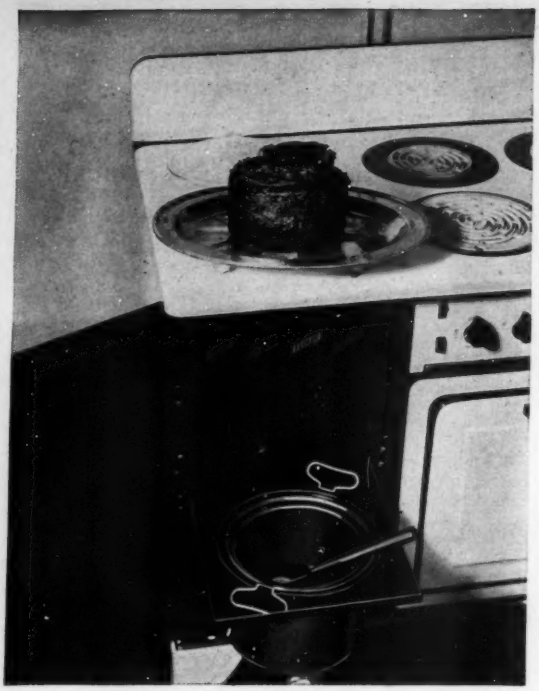
The thermostat in the oven keeps the current on long enough to reach and keep that temperature; it turns it off so the oven will not get any hotter and on when it starts to cool down. Off and on, off and on, through all the baking time.

These exact oven temperatures always bring the same good results.

Nor is it merely the exact accuracy of the temperature control that makes cooking with electricity so satisfactory. The great flexibility of the control is a new thing, too. You can get a slow oven for a cheese soule just as easily as a hot one for biscuits, and a sizzling heat for broiling steaks takes no more work or worry than turning a switch.

"I've put all my worryin' time into learnin' how

No kindling to split, no wood to carry for a range like this.



to use the stove from that little book that came with it," Mrs. Roland told me. It's full of pictures and recipes and tells just what to do for all kinds of cooking."

Since she never has to watch her electric range to make sure it is hot enough, or that it isn't cooling off, she can go on about the rest of her work without giving a thought to the food in the oven.

"It gives me more time for my knitting and reading," Mrs. Roland said contentedly.

Because it is so easy to control electricity wherever it is used, you can use a clock to turn it on for you. If you have a clock on your range, you can set it to turn the current on in the oven, or in the cooker, or under a kettle on one of the surface units, and then, no matter what you are doing, shopping in town, working with the hens, or sewing up stairs, when ten o'clock comes, that clock control will turn the current on and the dinner will begin to cook. You can set the clock to turn it off, too, if you like.

"I had to learn a thing or two about those oven dinners," admitted Mrs. Roland. "It isn't all just as easy as fallin' off a log, this learnin' to cook by note instead of by ear. I remember the Sunday the minister was coming home to dinner with us. He had to go on to another service in the afternoon, so I put the dinner in the oven before we went to church, a big meat loaf, some Hubbard squash, and a cherry pudding. Then I got the potatoes all ready, washed and greased, and warned the hired man to put them in at exactly quarter after eleven. That gave 'em an hour.

"Well, we got home, and I hustled things onto the table and when I began dishin' up, I tried to stick a fork in those potatoes, but they were hard as bricks and no more done than a chopping block.

"We couldn't wait, so we ate without them, Caleb grumblin' all the time about raisin' the best dang potatoes in the country and not havin' a one to set before company when they come.

"The minister didn't care much, I guess. He figured he'd make out with a couple of helpins of pudding instead, he said. It made me kind of mad, though, and I called up Sara Elizabeth that very afternoon and told her that stove was no baker.

"'Why Granny Roland,' she sez, 'you've been baking the best cakes you ever made in that oven. Whatever makes you say that?'

"So I told her about the minister and the potatoes but she just laughed and asked me what temperature I was usin' for my dinner. As I remembered I'd moved it just a mite above 300.

"'Humph,' she said when I told her that. 'If you put some of those giants of Grandad's into a 300 degree oven, of course they wouldn't get done in an hour. Why when you used to bake potatoes in that old stove of yours, you used to have the hottest fire you could get.'

"And the child was right. I always did 'n I guess heat's heat however you get it. But I'm learnin.' When I cook several things at once, nowadays, I pick out foods that will cook in the same temperature, and will get done in somewhere near the same length of time. Of course, I can put something in after the rest have started, but I figure out before hand how long they'll take, and give 'em plenty of time."

Mrs. Roland slid her glasses down her nose and peered at me over their tops.

"If you're figurin' on writin us up in that paper of yours," she said with a twinkle," "mind you tell those folks that if they have to wait for their golden wedding to get an electric range, they're goin' to find, like I did, that the first fifty years are the hardest."

Above: Cooked slowly in the deep well cooker.

Below: More time to listen to the news.

Right: A crop of beans growing under electric light at the seed farm of the California Packing Corporation, near San Jose, Cal.

Below: Interior of glass house at the California Packing Corporation's seed farm near San Jose, showing installation of electric lamps to stimulate growth of a crop of peas.

Three Seed Crops a Year with SOIL HEATING CABLE and LAMPS

By A. T. CLIFTON, JR.

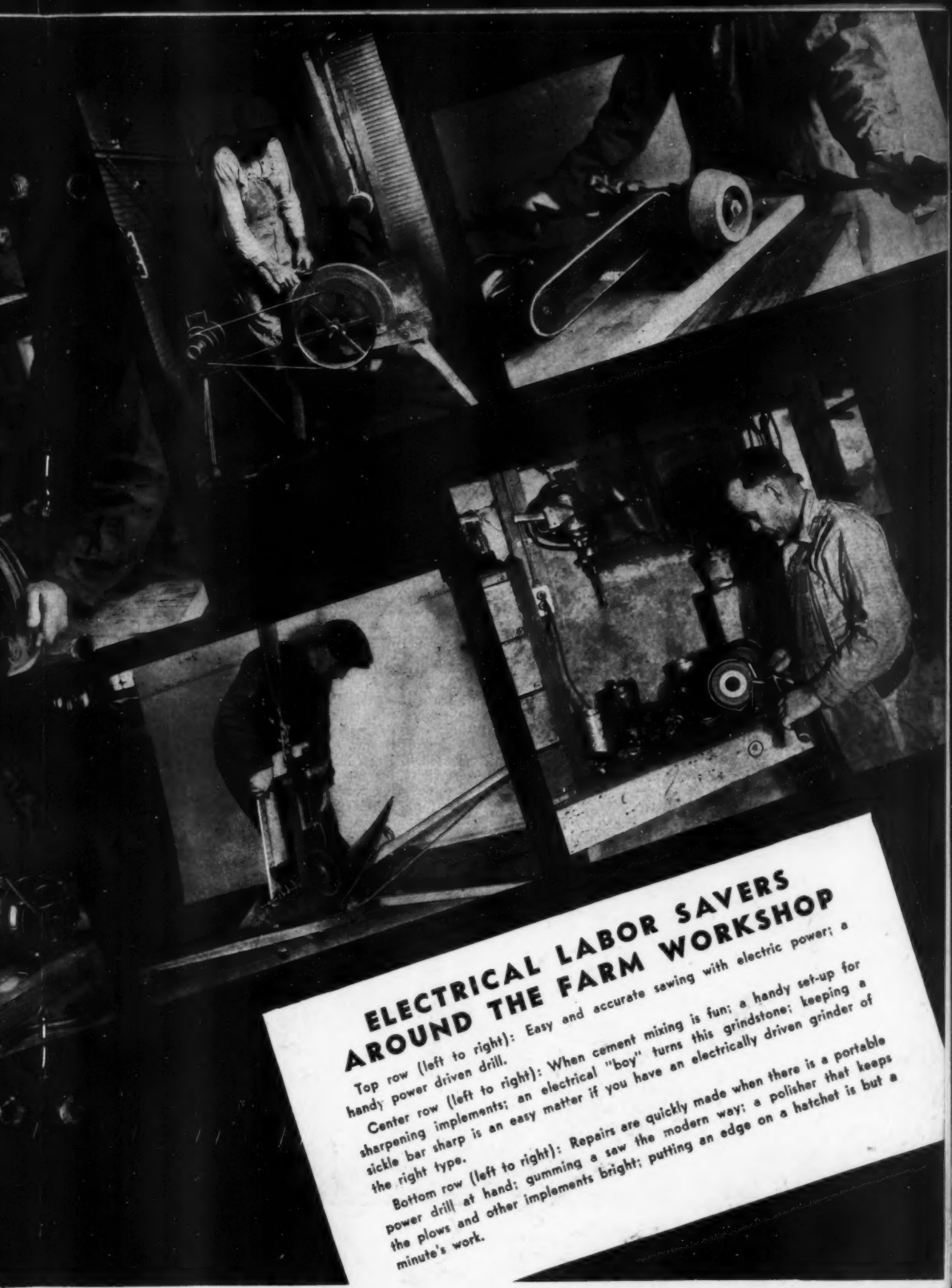
GROWING two and three crops of the same kind per year where one grew before is now standard practice at the seed farm of California Packing Corporation near San Jose, California. This great saving of time is accomplished by using soil heating equipment to maintain summer temperatures throughout the year, and incandescent lamps to extend the hours of light during winter months.

The Santa Clara Ranch, as the seed farm is called, has growth-speeding electrical equipment installed in two glass houses where new seed types are being developed. One house, 85 feet long, uses both soil heating cable and lighting equipment for growing string beans and limas. The other house, which is twice as large, has lights and space heaters but no hotbed cable. Here peas and tomatoes, which thrive without soil heating, are grown. Two-hundred-watt lamps with wide reflectors are used in both houses, so arranged that every lamp gives brilliant light over fifteen square feet.

The bean house is operated during the cold months, from October to May, and gives one crop per year in addition to the summer field crop. The long house, however, is operated the year round, and gives one more crop of tomatoes and two more crops of peas than would be possible per year without electric heating and lighting.

Normally five to ten years of planting, selecting and re-planting are required to bring a new seed type to full development. The Ranch staff studied the reports of electric soil heating experiments carried out by the Universities of California, Idaho

(*Continued on page* 27)

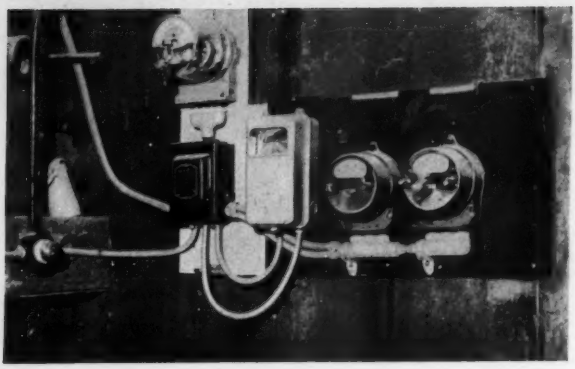


ELECTRICAL LABOR SAVERS AROUND THE FARM WORKSHOP

Top row (left to right): Easy and accurate sawing with electric power; a handy power driven drill.

Center row (left to right): When cement mixing is fun; a handy set-up for sharpening implements; an electrical "boy" turns this grindstone; keeping a sickle bar sharp is an easy matter if you have an electrically driven grinder of the right type.

Bottom row (left to right): Repairs are quickly made when there is a portable power drill at hand; gumming a saw the modern way; a polisher that keeps the plows and other implements bright; putting an edge on a hatchet is but a minute's work.



"To check up on Mr. Wells' chickens."

WHAT DOES IT COST?

By H. L. TREU

MR. SLOT WELLS of Big Flats, New York, has been using electric service for years. He has gradually added to his equipment until now electric power milks the cows, cools the milk, pumps the water, chops the hay and ensilage, lights the hen houses, operates both metal and wood turning lathes, drives his saws, and energies the electric fence.

"I believe in making electricity do everything it can for me," he says. "I put it to all kinds of work because I know that if I just use it properly, it is no luxury, but a paying proposition on my farm.

"Of course, I've known for a long time what a lot of time and work it saved. And I knew how safe and convenient it was to use, but I never did know until the power company got to work with their meters just how much it took to do each separate job and just what the power cost was for each."

Because his farm is so well equipped with good practical equipment, the local power company chose it recently as a place to learn all about power costs under ordinary farm conditions. They decided, with Mr. Wells' permission, to put separate meters on each different machine or group of machines to show how much current it uses. Of course considerable re-wiring was needed. For this they used the new non-metallic flexible cable which is so much better and cheaper than some of the older wiring methods.

Already other farmers are visiting this farm to learn from this thoroughly practical set-up what to expect from the additional use of current on their own places.

Most of them are quite surprised and very much pleased to learn how little it actually costs to use electricity for many farm jobs. When these test meters have recorded the energy for each of these jobs for a whole year, they will furnish the finest kind of information on how economical electric service really is.

Shingle sawing is one of the unusual jobs that is metered at the Wells farm.

ELECTRICAL HOUSEKEEPING

Conducted by
GAIL MEREDITH

FIND THE WAY TO WASH

FOR the women who find it hard to get clothes clean even when they can dump them into a good washing machine and turn the work over to a motor, the laundry studies that have been made during the last few years are of considerable importance.

They have resulted in directions for washing clothes almost as definite and quite as reliable as recipes for cake or jelly. They can't be absolutely exact for, though your flour and my flour, the eggs in your refrigerator and the eggs in mine, the sugar and the baking powder, and the flavoring are all very much the same, our clothes are not. Neither is the soiling uniform. Nor will the water and soap be identical. But keeping these variations in mind, and making our own adjustments for them, we can take their recommendations and follow them through to a line of clean clothes.

Perhaps you would like to know who it was that made this study of the best way to wash our clothes. As near as I can find out the plan has grown up from the experience of many women who are washing clothes in the laboratories of factories where washers are made, in the test kitchens of electric utility companies, in the research laboratories at universities and colleges, in the institutes that magazines support for studying household equipment, and from hundreds of basements where the women who do the washings have helped these people try out this plan and that in search of the best way to get their clothes clean.

You can now find the methods that brought the best results advocated in the books on laundering put out by the washing machine companies, the soap companies, and the woman's magazines.

All of these experts agree that a successful wash begins at the clothes hamper with careful sorting. The table linen makes one pile, so does the bed linen; the body clothes, the light colored clothes, and the dark colored clothes, each make a washer load by themselves. There is often a special pile of silks, the synthetic fabrics and the woolens, too. These need special care in washing. Unless you are the wise sort of housewife who takes the stains out of fabrics as soon as they get in, there should be still another pile of clothes that need a stain remover before they go into the tub.

If you want a very complete dictionary on the removal of stains, you can get it by sending five cents in coin or stamps to the Superintendents of Documents, Washington, D. C. and asking for U.S.D.A. Farmer's Bulletin No. 1475, Stain Removal from Fabrics. Home method.

I find that these people are unanimous in suggesting that we might as well save our backs while we are sorting the clothes by using a table to dump the clothes on. This can't really be called a part of the new washing technique, but it is one of the things that make wash day easier.

Some of the model laundries have ventilated bins, each big enough to hold a washer load at once. If you have a husband or a son who is clever with a hammer and saw, and you would like to know more about these laundries that save your back, just drop me a line and I will be glad to tell you about them more in detail.

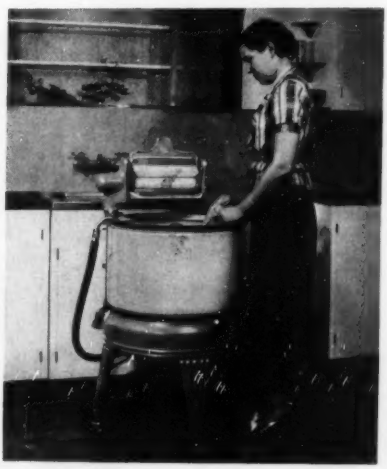
If you live in a hard water region, as so many of us do, softening the water is the next and a vital step toward clean clothes.

Then put the white clothes to soak in cool water. It can be clear or soapy water as you like, but if you must economize on hot water, soaking the clothes in soapy water gets out more of the dirt and keeps the water in the washer clean for more loads.

Soak the clothes for about fifteen minutes.

Fifteen minutes doesn't seem very long to folks who always used to put their clothes to soak on Sunday night, does it? But after making a careful study of countless washings, these people decided that the clothes are actually cleaner with

A good machine makes the new method most effective.



Just waiting to banish blue Monday.

the short soaking than with the longer one.

Next run hot water into the washer. Really hot water—140-160 degrees F. Then make a good suds.

You and I have our own ideas about a good suds, but if we are to believe these folks who have been taking special note of the problem, it isn't a matter of opinion at all. It is a mere matter of measurement.

"Add enough soap to make a two-inch standing suds," they say.

Moreover, they actually recommend that you take out a ruler and measure the suds if you aren't sure. You'd probably never have to do it but once. If you got that suds with a cup and a quarter of your favorite soap, well and good. Dump in a cup and a quarter next time. If it took a cup and a half, chalk that down somewhere so you will remember it.

The men who made our washers took great care to discover just how many clothes they could wash at a time and do the best job. It is wise to follow their advice, for neither overloading nor underloading give as good results as using the right amount.

Before you add a second load to the washer, make sure that the water is still hot, that it has a good suds, and it is not too dirty.

The tub-fast colored clothes come in for a fifteen minute soaking, too, but they should be washed in water not hotter than 100-110 degrees.

Time your washing, too. Of course no one can give you an exact rule for timing. It depends on so many things, how dirty the clothes are this week, the water, the soap, and the machine. But, as a rule, these folks say that five minutes is enough for slightly soiled clothes, seven minutes to ten for moderately dirty ones, and fifteen minutes long enough to get out the stubbornest dirt.

Have you seen the little switches that go on some washing machines nowadays to time the washing? They have a dial with the name of the various fabrics and the recommended time for washing. If you have one of these, you can set it at three minutes for blankets, at five for table linen and go about your work without keeping an eye on the clock. The switch will turn off the motor when the time is up.

If you have been in the habit of peering about your kitchen through a haze of steam while the clothes gurgle and thump in a boiler on the stove, you'll probably welcome the news that this step is dropped from the modern method. The very hot wash water gets white clothes clean.

After the washing comes a soapy rinse at 115-120 degrees, with half as much soap as you used for the washing. Then a luke warm rinse in clean water. You can end with a bluing rinse or not, just as you prefer.

I hope you are doing the rinsing in your machine. It may take a little longer to get through with the washing if you have to run through several loads before you can rinse any, but it will save you a good deal of work, and it will probably give the clothes a more thorough rinsing.

You need a clock and a thermometer to follow this new technique. There is nothing complicated, nothing hard about it, is there? You give over

Washing is a man's job in Ceylon.

boiling the clothes, and you measure the temperature of the water, and you time the washing.

Long soaking and long washing are definitely frowned upon.

"Time them. Time them," say the experts.

And you'd better do it, for they suspect from their study and observation that long soaking makes the fibres of cotton and linen swell and absorb the dirt in the water—and long washing apparently drives the dirt back into the clothes again, and makes them grey and dingy.

It's easier and better, this new technique for washing clothes.

• • •

KITCHEN LAMPS

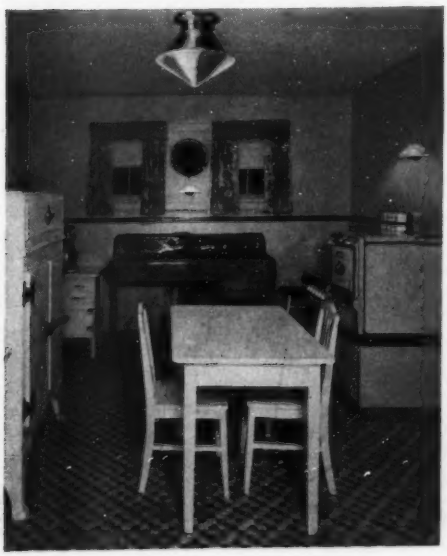
NEVER think for a minute the young woman from the power company will hurry past your kitchen when she is helping you make over the lighting in your home. She thinks the kitchen just as important as you do, and she knows it needs good light.

"To get plenty of light so you can see to work easily," says Irene Swann, lighting specialist from our local power company, "you need first of all a good ceiling fixture in the center of the room. For any ordinary sized kitchen a 100 or 150 watt bulb in a glass bowl of some kind is enough."

This gives a very different light from a bare 25 watt bulb hanging at the end of a cord. It gives much more light, of course, and a much easier light to work in because there is no glare from a lamp covered with a milk white glass that diffuses the light softly throughout the room.

There are reasons enough for having plenty of light in the kitchen. In any place where most of

Light where you work.



ENJOY THE BENEFITS OF DOING HARD WORK THE EASY WAY

By making an easy job of hard work, Century Motors provide more leisure for doing the things you like—add to the comforts of living—and create more time for recreation, pleasure and enjoyment.

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For January

YOU couldn't use five dollars, could you? If you could, why not write us a letter about the job that seems the hardest, or the most irritating, or the most time-taking, at your house? For the letter we print, we will pay five dollars. You can call it

"This is the job I dislike most."

Your letter must be in by February 15.

the work is concerned with food, a woman ought to be able to see that dishes and cloths and foodstuffs are clean.

"Of course you can't see to work everywhere in the kitchen with a single light overhead," Miss Swann went on. "If you try to, you will find yourself half the time standing in your own light. When you wash dishes at the sink, your shadow covers the dishpan and when you go over to the work space on your kitchen cabinet to roll out a pie, your shadow gets there first.

"Besides, you need more light on the recipe for the cake you are making than you do throughout the room, more light on the plate you are washing, and more light on the gravy in the skillet on the stove if it is to be free of lumps. To get this extra light, you need a lamp placed so it will shine on the sink, another near the stove, and still another over the cabinet or counter where you prepare your food. A 60 watt bulb will give you 10-20 foot candles, the recommended illumination, on your work. Of course, each of these lamps should be shaded."

We are learning nowadays that light is not a luxury. We do not put up a new lamp in the center of the kitchen and another over the sink as we put up gay curtains at the window and new paint on the walls, just to make the kitchen a pleasanter, cheerier place to work, though it does that, too.

In a good light you can peel potatoes, scrape carrots and wash dishes faster than you can in a poor one. You can do it with less effort. When you are ironing on a dark day, light at hand prevents your scorching the men's white shirts or your three yard tablecloth. A good light cuts down the likelihood of mistakes and lessens the danger of accidents or burns.

Miss Swann sums up the whole case for plenty of light in your kitchen like this:

"A good light helps you to do the work better; it lets you do it easier; and it makes you do it faster."

To give you all the light you are buying the bulbs and the shades of these kitchen lights need frequent washing to keep them free from dust.

The color of the walls and ceilings can do a great deal to the lighting of a room. To get the most good from your lighting, use light paint, too.

It may be that you have always thought that cream colored walls just made a room look lighter, and that a dark green kitchen only looked gloomy. That is not the case. Light colored walls actually do make the room brighter, these lighting experts say. And dark green walls do make it darker because, instead of reflecting the rays of light,

(*Continued on page* 30)

A bracket lamp with a good glass shade.

ON THE AIR

Conducted by JEROME J. HENRY

Cold Weather Note

AT this season it may be difficult to recall last summer's hot spells. But not so long ago on a scorching day Honeyboy and Sassafras, NBC assassins of sorrow, horrified everyone by dashing through the streets wearing derby hats. "It keeps us cool," the boys explained. And sure enough, it did. Under each derby was a rubber ice bag.

• • •

Jean Dickenson Back on Air Waves

JEAN DICKENSON, 22-year-old coloratura soprano, is now on a series of network programs. A little more than a year ago Jean made her debut on the radio networks. Before that she was heard from a broadcasting station in Denver.

Jean's brunette beauty and enchanting smile are enhanced by a cosmopolitan poise that comes from a life of extensive travel. Jean's father is a mining engineer and so, of course, the Dickenson family are rovers.

Actually, Jean was born in Montreal while her family were en route from Alaska to India. After four years there, they again boarded trains and ships and automobiles, eventually hitting San Francisco, where Jean went to high school. At length they reached Denver, where Jean discovered her fine voice. Thereafter her parents moved on without her.

Jean's voice is clear and incredibly high. She can reach the G sharp above high C with ease.

• • •

Good Will Court Gains Favor

TODAY one of the most popular radio programs is the Good Will Court heard each week over a nation-wide network. Elaborate care is taken to protect those who go to court from suffering through exploitation. When the broadcast is on the air the doors to the studio are guarded.

Telephone calls from listeners offering help to the litigants often come to the studio, and every Monday and on through the week following each broadcast on Sunday, letters come in.

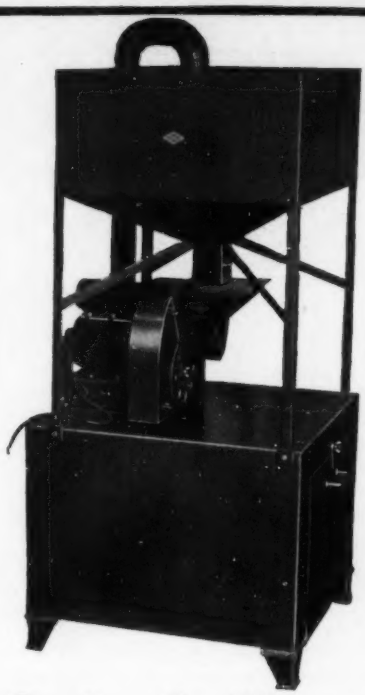
The names of the litigants are never given out to protect them. The litigants are given the offers of assistance that come in.

To give legal advice to the radio clients a different judge is selected each week. Before the microphone the injured persons tell their stories. They are known as cases rather than individuals so far as the radio audience is concerned, but the unique broadcast rapidly has captured the public fancy.

• • •

Lawyer to Leading Lady

JOAN BLAINE of the stage and screen is the leading lady of "A Tale of Today," popular dramatic series over NBC stations. Joan studied



Grind Your Own FEED

At low cost . . . As you want it . . .
When you want it . . . With the efficient . . .

Viking Junior Hammer Mill

With a Viking on the place you simply pour grain into the hopper, snap the switch, and the mill gives you just the kind of grind you want. It uses less power than the average toaster or electric iron . . . about one half kilowatt per hour . . . plugs into any 110 volt light socket . . . grinds up to 700 pounds of feed per hour . . . has automatic feed and so keeps right on grinding while you do chores or other work . . . has starting switch and device for overload protection . . . comes complete with one half horse power motor and four screens for grinding coarse, medium coarse, medium fine or flour fine . . . screens can be changed in one minute or less . . . has attachment which will grind limited quantities of hay, ear corn, etc. . . . is sold complete with three bushel grain hopper and rat proof feed bin as illustrated above, mill itself alone or mill and rat proof bin.

If your dealer cannot demonstrate the many economies of this sensational labor saving mill, that will actually pay for itself, write to us for illustrated folder and full information.

Prospective dealers should also write immediately for our liberal sales proposition, since considerable territory is still open.

Viking Manufacturing Co.
Jackson, Michigan, U. S. A.

to be a lawyer, became a concert singer and harpist instead. Then she tried the stage with such success she was starred on Broadway and landed a Hollywood motion picture contract. Today she is one of the most sought after actresses in radio. She's single, has blue eyes, dark hair. She lives with her mother and brother in Chicago.

• • •

Studio Chatter

NOW you can see Don Ameche on the screen as well as hear him on the air. For several years Don has been starred in radio's leading dramatic sketches. Not long ago he went to Hollywood, got a contract, and is now busy making pictures.

Martha Raye goes on the air in the new Al Jolson program. Irvin Cobb writes for you a newspaper column, entertains you over NBC stations on Saturday.

• • •

Tenth Anniverasry of Radio Network Passes

NBC in the closing months of 1936 celebrated its tenth anniversary. In that brief span of years the radio broadcasting industry developed from an infant to a full grown division of the entertainment and educational world. Shortly after NBC became a reality as a network of associated stations the National Farm and Home Hour was originated for the particular interest of farmers. For years now this feature has been on the air every week day and has come to be regarded as a favorite not only of listeners in the country but those in the city as well.

Though these years the Farm and Home Hour has brought to listeners current agricultural news and information of value. It has given them ringside seats at practically all of the major agricultural events such as conventions, expositions, meetings, and other developments.

Some of your favorite radio stars of nine or ten years ago are still favorites. There are Billy Jones and Ernie Hare, one of radio's very first teams.

As the years went on new developments followed closely one on the heels of the other. There came international broadcasts from other countries, short wave broadcasts from mobile transmitters, broadcasts from the skies, from beneath the surface of the earth, and even from the depths of the oceans.

In those early days announcers had to do a lot of talking—sometimes talent didn't show up—other times copy didn't come in so they had to fill in the time. Now everything is done with planned precision, and television promises to become the next radio development of major importance.

• • •

Elza in Movieland

ELZA SCHALLERT, authority on motion picture folk and film activities, is as much at home in Hollywood as a forester in the north woods. Mrs. Schallert, whom you hear on the

Ask for it . . . It's FREE

As a reader of ELECTRICITY ON THE FARM you are entitled to our buyers' information service free of cost. Here is how it works.

Whenever you are seeking information about any piece of equipment or material that you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you w..nt, just use the blank below to tell us what you need and we will see that you get the information you want. That's all there is to it. Easy, simple, and it costs absolutely nothing.

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air and who is also a feature writer on a Los Angeles newspaper, previews the latest pictures in her radio broadcasts.

• • •

Blowing the Bazooka

BACK in Van Buren, Arkansas, they're talking about the newest stroke of Bob Burns, favorite son, who tells those quaint stories about the home folks to radio listeners.

After admitting a year ago that he was a failure in pictures, Bob sends word that he's been signed to star in a big musical film, "The Big Broadcast of 1937."

Last summer, despairing of crashing the movies, Bob shook the dust of Hollywood from his shoes, which were rapidly growing thin in the soles, set out for New York, and made a direct frontal attack on radio fame. He had his first go on a big network with Rudy Vallee, and it was so successful that he was called back several times. Throughout

Much of the thrilling action in Girl Alone centers about these four people. Patricia Ridgers, the heroine is played by Betty Winkler. Upper right is Ted Maxwell, who is Leo Warner in the script. Below, left to right, are Ray Johnson in the role of Ty Deyoe and Pat Murphy as the irrepressible "Scoop" Curtis.

the past winter he entertained listeners with his accounts of doings around Van Buren.

More recently he appeared in "Rhythm on the Range" with Bing Crosby as a direct result of his radio success. As this picture was released he was signed for the new feature.

Trademarked by the stentorian boom of the bazooka—which he first constructed many years ago in a Van Buren plumbing shop out of two pieces of gaspipe and a whisky funnel, Bob Burns' stories have become a national phenomenon. On street corners, over breakfast tables, on trains, over the countryside all America is asking:

"Say did you hear that one Bob Burns told last night?"

• • •

Al Rice, tenor of the Maple City Four, is left

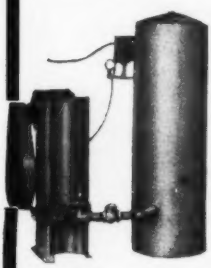
(*Continued on page 29*)

Enjoy Running Water the Year Around with an AERMOTOR WATER SYSTEM

● The **Aermotor Water System** is unequalled for dependable, low-cost operation. Home owners who have examined it enthusiastically selected **Aermotor.**

There are many good reasons for this preference. Investigate the rugged U-Bar construction which absolutely prevents oil from getting into your water, or water getting into your oil. Also the unique oiling system, adjustable stroke, and many other outstanding features that only **Aermotor** offers.

The **Aermotor Water System** will give you the most satisfactory all-around service you have ever had, because the greatest strength and durability have been built into every part.



● Notice its extreme quietness.. see its many improvements.. and be convinced that it is the most modern and trouble-free system you can buy.

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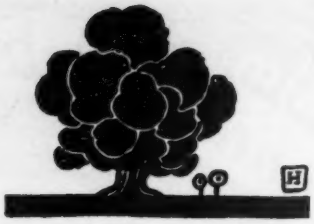

Under The CHESTNUT TREE

Inevitable

Political Speaker: "The time will soon come," bellowed the orator, "when women will get men's wages."

Melancholy Voice: "Yes, next Saturday night."

The Poor Nut

Friend: What are you doing with that red lantern?

Sap: I found it. Some poor nut left it out in the road beside a hole.

Wages Extra

He had got a job as collector for a penny-in-the-slot gum machine company.

"Take this master key and go round and empty all the coin boxes; get all the pennies," said the manager.

Three weeks later he walked into the office. "Can I have another key? I've lost t'other one."

"Certainly," replied the manager. "But where have you been all this time? The cashier has stopped late every Friday night, expecting you to come for your wages."

"Great guns!" exclaimed the collector, beaming broadly. "Do I get wages as well?"—Montreal Star.

The Impossible

A youngster fresh from school obtained a job in a butcher shop. When it came to closing time, his employer told the lad that if he hung up the meat and locked the shop, he could go home.

The butcher returned to the shop next morning, and found the lad still on the premises. He asked the reason for this.

"Oh," replied the lad, "I managed to hang up all the meat right, until it came to the hamburger!"

MEAT OR WIRE

"And of course," continued the radio salesman, "You must have your ground wires."

"Oh, that's alright," retorted the old farmer, "I've got a good grinder."—*Orland Krenke.*

A weary knight of the road had stopped at the sign of the "George and Dragon," and had asked the landlady for a bite to eat, and mayhap, an old pair of pants.

She (testily)—"No, I haven't anything for the likes of you, and I don't want to see you around here again. Well, be off with you. What do you want now?"

W. K. (meekly)—"Well, then, mam, could I speak to George?"

Three Driving Evils

"Intoxicated driving, uncontrolled thumbing and indiscriminate spooning," a traffic report declares, "are among the major menaces of our highway safety." Or to put it even more briefly, hic, hike and hug.

—Boston Herald.

And So On

"Well, dear," said Mr. Blair, after tea had been cleared away, "what are you planning to do tonight?"

Mrs. Blair shrugged her shoulders. "Nothing special," she replied. "I'll probably write a letter or two, read, listen to the radio, and so on."

"I see," he replied. "When you come to the so on, dont forget my shirt buttons."—Montreal Star.

Salesmanship

Super-salesmanship is not always of the intelligent kind.

The salesman was eloquent about the merits of a vacuum cleaner, but the village housewife wasn't impressed. She suggested that he talk less and show her what the machine could do.

He took off his coat, fitted up the cleaner, thrust his arm into the chimney of the open fire-place and brought out a handful of soot, which he scattered over the carpet.

He then shovelled some ashes from the grate and sprinkled them over the rug, adding a big handful of soil from the garden. Then he smiled and rubbed his hands.

"Now," he said, "I'll show you what this vacuum cleaner can do. You'll be surprised, madam. Where's the electric switch?"

"Switch?" echoed the surprised woman. "We use gas."

Modern Proverbs

A bird in the hand is bad table manners.

Success has turned more heads than halitosis.

A fool and his money are some party.

If you want to remember things, tie a string around your finger. If you want to forget things, tie a rope around your neck.

—Ohio Sundial.

Not Likely

The governor of a western state is quite a politician; he always tries to appear before as many people under as many conditions as possible. One day he was visiting a hospital and, of course, there was a very attractive young lady in charge. Wishing to make an impression he said to her, "Young lady, I think you have a very fine hospital here and if anything should ever happen to me I want to come to this hospital and have you take care of me."

The young lady replied, "I don't think there will be any danger of that."

"Well, why not," asked the Governor, "anybody can have an accident."

"Oh, yes," said the young lady, "it would be quite an accident. This is a Maternity Hospital."

Same Start

"Do you know," said the candidate for congress, "that I began life as a barefoot boy?"

"Well," said the voter, "I wasn't born with shoes on either."

Wolf! Wolf!

The Palo Alto police are an outstanding group of intelligent, wide-awake defenders of the peace. For instance, there was the time that a Palo Alto theatre installed a burglar alarm in the box office. In case of robbery, all the girl selling tickets had to do was to press a pedal sunk in the floor behind her foot. This rang a bell rigged up in police headquarters.

About two days after the burglar alarm had been installed, a gunman poked a pistol through the window of the box office and, in usual gunman fashion, demanded the cash therein. The girl, before handing over the money, pressed her foot on the pedal. At this point, however, the phone began to ring, and as the girl reached over to answer it the man grabbed the phone himself and lifted the receiver.

"This is the Palo Alto Police Department," the irate voice at the other end of the wire said. "Say, do you know you've got your foot on the pedal that rings the alarm over here?"

—Stanford Chaparral.

Three Seed Crops a Year

(*Continued from page* 15)

and Minnesota, and the bulletins of Purdue University on plant forcing with electric lights. Now, after two years of experience in the application of these methods, the Ranch officials find that only half the usual time is necessary for raising the first few generations of seed plants, and that the whole process can be done two or three years faster than before.

"We have had such success with speeding development of new seed types by use of electrical heating and lighting that it is now standard practice at our Santa Clara Ranch," says B. T. Booye, in charge of the Company's Seed Department. "The basic principle is simply to duplicate summer warmth with soil and space heaters, and extend the hours of light during the winter to the length of days during the normal growing season. The amount of light will vary slightly according to the crop being grown.

"Take string beans as an example. We have found that by varying the length of the light exposures, we can hasten or retard the time when the plants will set beans. If they do not get enough light, they do not grow. If they get too much light, they are likely to go to vines. Generally the light exposures are long at the start of the growing period, as days are long in summer when the normal crop is getting under way. Then the exposures are shortened, as the beans usually mature in the fall when the days are getting shorter. We make all the artificial 'days' longer than normal, however, because the electric light is naturally not so strong as sunlight."

Farm Painting

Unless paint products are applied, iron or steel will rust rapidly; cement structures may show surface checking, dirt retention and moisture effects; and wood surfaces will warp, check or erode. Paint is, therefore, an economic necessity for the maintenance of all structures.

The surface should be clean and as free of scum, grease and moisture as possible. It would be remarkable in any case for paint to give satisfactory results if applied on a moist surface.

As to the best means of application, it has been demonstrated that painting by electricity is quicker, cheaper, more cleanly and convenient, and of higher quality than the slow, tedious and wasteful methods practiced in past generations.

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SEPARATORS AND MILKERS

THERE is no equipment any dairy farmer can own which will give so much profit as De Laval Separators and Milkers. They do better work, give longer and better service, increase the quantity and improve the quality of product, and save time and labor twice a day 365 days a year.

There never was a time in the 59 years of De Laval's leadership in the manufacture of cream separators and milkers when users obtained so much value as in the De Lavals of today. They earn more and pay for themselves sooner than ever before.

There are 16 styles and sizes of De Laval Separators, ranging in price from $30.00 up. Sold on payments as small as $1.00 a week, so that they will pay for themselves out of cream now being wasted.

De Laval Milkers milk better, faster, cleaner and cheaper than any other method. Nothing will give a dairyman more profit or satisfaction. Outfits for milking from one to 1,000 or more cows, priced from $145.00 up. See your De Laval Dealer or write nearest office below.

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Fit your electric range with

Chromalox Super-Speed

the electric range top burners that have put electric cooking on a new high level of speed, satisfaction and savings.

Ask your dealer, your power company or write us.

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ASK YOUR POWER COMPANY for a DEMONSTRATION

WARNER ELECTRIC BROODER

Pays for Itself in One Brooding By the Chicks It Saves

No. 350—48" x 50". Wattage 800—$24.50.
No. 500—48" x 72". Wattage 1000—$34.50.

Mfg. by Warner Brooder and Appliance Corp.

Customers say: The moisture problem is solved. The ventilation (without fans) is perfect. The reflector, chromalox units and triple insulation make it the best electric brooder they have ever had. Two sizes.

Originated six years ago, with a splendid record of satisfactory, successful operation every season since. Constantly improving. Approved by practical poultrymen and rural electrical engineers.

Safe and Economical

Plug in the socket—regulate—and forget it until the brood is complete. No fires. Fully guaranteed. Operates 60 days in cold weather for as little as $4.40, yet requires no attention and no auxiliary heat in zero weather.

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FAMOUS CHROME STEEL REFLECTOR
Chromalox Heat Units
Automatic Switch
Guaranteed for Life of Brooder
Write for Free Folder Giving Dealer's Name.

Questions and Answers

Conducted by R. U. BLASINGAME

Size of Wire for Pump Motor

Question: *I would like to take advantage of your offer to give information on electrical problems. My problem is as follows:*

What gauge wiring should I use when I install a spraying system in my orchard, which I plan to do in the near future? I will have a spray pump, powered by a single phase 5H.P. motor. The pump and motor will be set up a distance of 600 feet from the place on the power company's line where my own power line will start from.

I have been told so many different things by men who I thought knew something about electrical work that I am uncertain just what gauge wire to use to reach my motor. I had decided that either a 6 gauge or a 4 gauge wire would be about right. Will you let me know which will be the better?

I will run the wires through a conduit underground. I will use a single phase motor, instead of a three phase, because the power company makes a low rate for power when used from the meter on the house, and the cost of the set-up is borne by the power user. I have been told that only a single phase motor can be used on such a setup, although the motor will work on 220 voltage. I have also been told that I must use heavier than ordinary wire to carry the wire to my motor at that distance.

I shall appreciate any help you can give me in this matter.

L. C.

Answer: The proper size wire to use for connecting your motor will depend upon the permissible voltage drop in the line. An excessive drop in voltage decreases the ability of a motor to start a load, reduces its speed and its power output, and increases the amount of energy lost as heat in the motor and wires. In extreme cases of low voltage the motor fails to start or carry its load, and it is likely that it will operate at temperatures high enough to injure it.

The permissible drop in voltage to allow in the circuit to the motor depends upon the no-load voltage and full-load voltage drop at the transformer, entrance switch, or point at which the circuit is to be connected to your existing wiring system, and upon the load characteristics and voltage requirements of the motor. Also, economic factors should be considered. A wire just large enough to provide the proper voltage for the satisfactory operation of the motor might in the long run cost more than if a larger wire had been installed. The increase in operating efficiency and energy saved in many cases will in a short time pay for the extra cost of installing a larger wire. Also, the wire selected should be adequate to handle increased loads should additional uses for electricity develop in the future.

Ordinarily the voltage drop at full load for motors should not exceed 5% of the no-load voltage, except for momentary overloads. It is recommended that 200 per cent of the normal load for a motor be used in figuring voltage regulation for a motor because of ordinary motor overload characteristics. However, operating a pump at constant pressure should require a fairly constant amount of power. Therefore, using 125 per cent of normal load should be adequate. Assuming 125 per cent of the normal full load current required by your motor to be 28.75 amperes the voltage drop for 1200 ft. of No. 4 wire will be about 9 volts. If the no-load voltage is 230 the total permissible voltage drop will be (.05 x 230) or 11.5 volts, which will allow for a drop of (11.5—9) = 2.5 volts at the entrance or point of connection. Under the same conditions No. 6 wire would give a voltage drop of about 14.5 volts which is too great. A wire smaller than No. 4 should not be used for this circuit.

Thawing Pipes; Heating Oil

Question: *I would like to have the following questions answered in your Questions and Answers department:*

1. Would it be possible to wrap a No. 12 bare wire around a 3/5" pipe, hook it up to a light switch and in that way keep the pipe from freezing?

2. Where can I obtain a 10-inch soldering iron ⅛-inch in diameter? I intend to put it in the oil to make easier starting. I am wondering if I could make such a rod?

W. J. T.

Answer: A bare wire wrapped around a water pipe and connected to the lighting circuit would result in a "short circuit" causing a fuse to blow. If connected to a circuit not properly protected by

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901-911 West Jackson Blvd., Chicago, Ill.

fuses or other devices it would result in injury to the wiring system and possibly cause fire. Even when it is insulated, ordinary wire cannot be used for this purpose. Because of its low resistance its use would result in a short circuit.

The use of a soil heating cable to prevent freezing of water pipes is found to be both convenient and practical in many cases. This cable consists of an insulation from moisture and most soil chemicals. It is obtainable through most electrical supply stores in lengths of from about 60 to 70 feet for operation on 115-volt circuits, or in lengths of about 120 to 144 feet for 230 volts. If it is not carried in stock locally, your power company representative can tell you where it may be obtained. In placing the cable beside the pipe it is preferable to first form it into a long "hairpin" loop and then lay it along the pipe so that the pipe will be between the sides of the loop, or to wrap the loop cable around the pipe so as to form a long spiral. If the cable is properly protected from mechanical injury where it emerges from the soil it should give satisfactory service for many years.

I do not believe that an electric soldering iron of the dimension you state is procurable or that it would be practical to make one, nor use one for the purpose suggested.

On the Air

(*Continued from page 25*)

handed, a characteristic that recently produced surprising results when he tried to crank an outboard motor. The motor started in reverse and backed Al and the boat up on the shore.

• • •

Television is Hot Stuff

TELEVISION may be just around the corner. At any rate there's a lot of activity along that line these days, and many listeners are thinking about seeing as well as hearing their favorites perform.

But to some radio stars television is not so attractive. The lights are much brighter and hotter than those used in taking motion pictures, some of the stars who have appeared in television broadcasts say. Besides that to bring out the features of the performers some rather odd makeup is used, for instance, black lipstick, and other uncomfortable and more or less unsightly concoctions instead of the customary cosmetics.

A UNIFLOW WATER SYSTEM CAN END THIS FOREVER . .

$102.00 BUYS THIS DEEP WELL SYSTEM FIRST STEP IN MODERNIZATION

A water system makes possible an inside bathroom—plenty of water on tap around the farm, and everything that it means.
Shallow Well Pumps — $40 and up
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Write for catalogs and prices on products listed below.

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SEPTIC TANKS

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UNIFLOW
ERIE PENNSYLVANIA

COOLS ALL THE MILK in EVERY CAN!

You get Icy Water ABOVE the MILK LEVEL, whether you have one can, half capacity or full capacity. ESCO NI-AG-RA with EXCLUSIVE HIGH WATER LEVELER cools both night and morning milk to 50° or less in one hour. Write today for booklet!

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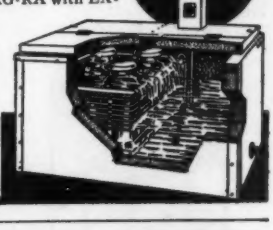

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WHAT TO MAKE *and how to make it* ON A LATHE

WRITE for these books: (1) The Home Workshop, *free;* (2) What to Make on the Lathe, *10c;* (3) How to Run a Lathe, 160 pages, *25c.* Coin or stamps accepted. Any South Bend Screw Cutting Lathe on easy terms. Priced from $85 up.

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TRUMBULL
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Practical poultrymen using this Brooder report these advantages:
One-Third Lower Current Cost
8% Greater Weight at 6 Weeks
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A GENERAL ELECTRIC ORGANIZATION

What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRCITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

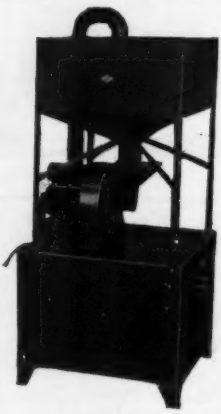
Electrically Heated Waxer

Dressing poultry on the farm, where it is raised, is a well established practice in metropolitan areas and is being practiced to an increasing extent in those other regions where markets may be reached readily. Feathers are removed more quickly by semi-scalding fowls, rough picking them, then drying well, allowing to cool, immersing in wax and removing the wax.

Heating the wax to a temperature of 125 degrees F. and maintaining it at that temperature is accomplished by an electrically heated waxer, a new product of an eastern manufacturer. This waxer is made in only one size with a capacity of 100 pounds of wax. It is equipped with an electric heater of 1,000 watts, which is controlled by a thermostat.

Feed Grinder

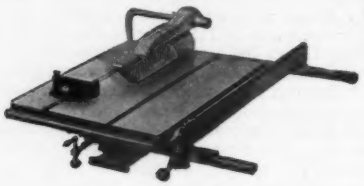
Whether to grind grain or feed it whole is no longer a question with many farm people since the economy of grinding certain grains for livestock is readily known. The problem which many users of ground grain must answer is whether they can economically use a grinder. The development of new small electric motor driven feed grinders has answered the question in the affirmative on many farms where semi-automatic operation of the grinder is feasible.



A very recent addition to the list of small feed grinders is a new hammer mill developed by a corn belt manufacturer. This all-steel grinder is equipped with nine reversible hammers with four cutting edges which are mounted directly on the motor shaft. A ½-horsepower motor, which may be operated on a 110-volt circuit, provides power for the grinder and is equipped with starting switch and device for overload protection. Grain is fed into this grinder by an automatic feeding device.

Circular Saw

Winter days are more completely occupied on many farms by time spent in the farm workshop besides that used for livestock feeding and other



chores. Old equipment is rebuilt or new is constructed when field work is impossible. Farm gates, wagon boxes, hay racks and poultry or livestock feeders are repaired or constructed anew. Motor-driven woodworking equipment facilitates such repair or renewal.

A recent tool of interest to the farmer, who does some woodworking in his workshop, is a 10-inch ball bearing table saw manufactured by a middle-western manufacturer. Power is furnished by a ½-horsepower, 110-220 volt a.c. motor. The table, 20 by 27 inches, permits the crosscutting of stock 12 inches wide, 3¼ inches thick with full bearing on the table for both the work and the miter gage.

Kitchen Lamps

(*Continued from page 22*)

turning them back into the room, the dark colors absorb the light.

A pure white ceiling will reflect some 82% of the light from your lamps. You can stand that reflection from a surface above the level of your eyes, but lighting specialists tell us that such a wall reflects too much light for comfortable seeing, that colors that reflect about half the light are easier to live with.

Ivory, cream, a very light gray, even a pale green and a pale blue will reflect from 52 to 67% of the light so any of these colors would make a good background for effective kitchen lighting.

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LYON ELECTRIC BROODERS ARE BUILT TO GIVE YOU THE BEST IN BROODING. The exceptional success, economy and long life of Lyon Brooders are the natural results of years of specialization. Imitators come and go but the Lyon stays because of essential patents and experience. The Lyon Free Advising Service offers valuable help on brooding, heating and ventilation problems. This service is not duplicated by any other manufacturer. WRITE FOR FREE CATALOG OF ELECTRIC POULTRY SUPPLIES including PROVEN FAN BROODERS, incubators, time switches, water heaters, etc., LYON ELECTRIC CO., Dept. EF, San Diego, Calif.

WRITE FOR BROWER'S New Big Supply Catalog and Poultry Guide. Shows largest line of poultry equipment in world; over 425 items; including Electric Fountains, Brooders, Incubators, Lighting Devices. Filled with poultry information. Low prices—Big Savings—Write today. BROWER MFG. CO., Dept. N30, Quincy, Ill.

COVER TITLE CONTEST

NOVEMBER COVER

RULES
January Title Contest

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief—the shorter the better.

All members of the farm family to whom this magazine was sent may submit title, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before February 1st.

Winning names and titles will be announced in the March issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

First Prize for November—$20

"Done to a turn, by the turn of a knob,
Timed by the clock—t'was the easiest job!"

MRS. C. G. NAESETH, R.F.D. 1, Morrisonville, Wis.

Nine $2.00 Prizes for November

"No 'burnt offerings' on turkey day
When electricity is the cooking way."

R. W. CARR, Parkersburg, W. Va.

"A Thanksgiving turkey and a thankful wife,
Her electric range is the pride of her life."

MRS. PAUL HESS, Elizabeth, W. Va.

"Her smile of assurance seems to favor
Electric cooking to preserve the flavor."

MARTHA HAWKINS, Box 25, Silver, N. Y.

"Nevermore are mother's days hectic
Since now she has her range electric."

MISS BERT McNEELY, R.F.D. 2, Colfax, La.

"On time, and 'sure-fire' treat;
You have control with electric heat."

MRS. JOHN A. JENKINS, R.F.D. 2, Perryopolis, Pa.

"From wood to current, what a change,
Hats off to the electric range."

MRS. S. R. SHULER, Holly Hill, S. C.

"Electrically roasted, oh what a happy smile,
It's got the old way beat by a mile."

MRS. JOHN SPITZNER, R.F.D. 2, Box 106, Mukwonago, Wis.

"From hatching egg to Thanksgiving table,
The heat comes thru electric cable."

MRS. CLYDE LEONARD, R.F.D. 2, Kingsville, Ohio

"Cooking with electricity, as you no doubt have heard,
Makes choicest eating of the toughest bird."

MRS. R. J. RIEDER, R.F.D. 5, Independence, Mo.

My title for the Front Cover picture on ELECTRICITY ON THE FARM for January is

.....

.....

(a) Have you a Hot Water Heater?..... If you have please check type.

☐ *Boiler connected to coal or wood stove.* ☐ *Gas Heated.*

☐ *Oil Heated.* ☐ *Electric Heated.*

My name is.....*R.F.D.*.....

Post Office.....*County*.....*State*.....1-37

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24 West 40th Street
New York, N. Y.

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Pennsylvania State College,
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What it does for others—it can do for you!

ELECTRICITY — the magic power that has brought so many conveniences to the modern city—is now available to a substantial part of the rural population of the U. S. A.

Already thousands of farmers in this country are finding that a wide use of electric service in their daily farm and household tasks not only makes work easier and more profitable, but also makes life more enjoyable.

What electricity is doing for these farmers it can also do for you. In order that you may become better acquainted with the many ways in which electricity can serve you, this monthly magazine describing other farmers' experiences is being sent you each month.

When questions arise pertaining to the application of electricity to your requirements, consult either your Power Company or the publishers of this magazine. Both are at your service!

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